Access DB# 269989

EIC 1700
SEARCH REQUEST

Today's Date 8-20-08

Name Wayne Langel

AU/Org. 1793 Examiner # 60603

Bld.&Rm.# E09A29 (Remsen) Phone 2-1353

Priority App. Filing Date 5-7-03

Case/App. # 10/555665

Format for Search Results

EMAIL ___ PAPER ✓

If this is a Board of Appeals case, check here ☐

Synonyms

Describe this invention in your own words.

Terms to avoid

Additional Comments Please search claims 1-30, as attached hereto. Please see claims 9-12 for examples of the layered double hydroxide material (typically a hydrotalcite).

Please submit completed form to your EIC. SPE Signature here indicates Rush

****

STAFF USE ONLY

Searcher: MH

Searcher Phone #:

Searcher Location:

Date Searcher Picked Up:

Date Completed: 8/26/08

Searcher Prep & Review Time:

Clerical Prep Time:

Online Time:

Type of Search

NA Sequence (#)

AA Sequence (#)

Structure (#)

Bibliographic

Litigation

Fulltext

Patent Family

Other

Vendors and cost where applicable

STN

Dialog

Questel/Orbit

Dr.Link

Lexis/Nexis

Sequence Systems

WWW/Internet

Other (specify)

PTO-1590 (8-01)

10/550665

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for treating waste material containing manure from animal feedlots, the method including the steps of mixing the material with a layered double hydroxide material, optionally a clay material and optionally water to form a mixture, said layered double hydroxide material being added in an amount sufficient to sequester anions present in the waste sludge or slurry, said layered double hydroxide material and optionally clay material and optionally water being added in an amount sufficient to form a workable mixture for granulating, and subjecting the mixture to a granulating process and a drying process to form dried granules.

2. (Original) A method as claimed in claim 1 wherein the amount of layered double hydroxide material added to the waste material is determined by adding trial amounts of layered double hydroxide material to a sample of the waste material, analysing a liquid component from the waste material for anion content, selecting a liquid component having a desired or pre-determined anion content and selecting the amount of layered double hydroxide material added to the waste sample from which the selected liquid component was obtained as the determined amount of layered double hydroxide material.

3. (Original) A method as claimed in claim 2 wherein the amount of layered double hydroxide material added to the waste material is in excess of the determined amount.

4. (Original) A method as claimed in claim 1 wherein the amount of layered double hydroxide material to be added to the waste material is determined by determining the amount of soluble anions in the waste material and adding at least sufficient LDH material to sequester the determined amount of soluble anions.

5. (Orignal) A method as claimed in claim 4 wherein the waste material is a waste sludge or slurry and the amount of layered double hydroxide material added to the waste sludge or slurry is determined by determining the amount of dissolved anions and leachable anions in the waste sludge or slurry and adding at least sufficient layered double hydroxide material to sequester the determined amount of dissolved and leachable anions.

6. (Currently Amended) A method as claimed in claim 4 wherein the amount of layered double hydroxide material added to the waste sludge or slurry is in excess of the amount required to sequester the determined amount of dissolved and leachable anions.

7. (Currently Amended) A method as claimed in claim 5 ~~or claim 6~~ wherein the amount of layered double hydroxide material that is added to sequester the determined amount of dissolved and leachable anions is determined by determining the anion exchange capacity of the layered double hydroxide material, and calculating the amount of layered double hydroxide material required to sequester the determined amount of dissolved and leachable anions.

8. (Currently Amended) A method as claimed in ~~any one of claims 5 to 7~~ claim 5 wherein the amount of dissolved and leachable anions present in the waste sludge or slurry is determined by separating the sludge or slurry into a liquid fraction and a solid fraction, analysing the liquid fraction to determine the amount of dissolved anions, and subjecting the solid fraction to a leaching test to determine the amount of leachable anions.

9. (Currently Amended) A method as claimed in ~~any one of the preceding claims~~ claim 1 wherein the layered double hydroxide material is preferably of the general formula (1):

$$M_{1-x}^{2+}M_x^{3+}(OH)_2A_{x/n}^{n-}yH_2O \qquad (1)$$

where M^{2+} and M^{3+} are di- and tri-valent metal ions respectively and A^{n-} is the interlayer anion of valance n, the x value represents the proportion of trivalent metal to the total amount of metal ion present and y denotes variable amounts of interlayer water..

10. (Original) A method as claimed in claim 9 wherein the metal ions are selected from Mg^{2+}, $A1^{3+}$, Mg^{2+}, Fe^{3+} and other cations including Ni, Zn, Mn, Ca, Cr, and La.

11. (Original) A method as claimed in claim 10 wherein the metal ions are Mg^{2+} and $A1^{3+}$ and the layered double hydroxide material is a hydrotalcite.

12. (Original) A method as claimed in claim 11 wherein the hydrotalcite $C1^-$ ions or nitrate ions as its interlayer anions.

13. (Currently Amended) A method as claimed in ~~any one of the previous claims~~ claim 1 wherein the clay material is added and the clay material is selected from natural clays and synthetic clays.

14. (Original) A method as claimed in claim 13 wherein the natural clays are selected from bentonite, montmorillonite, kaolinite, halloysite, illite, chlorite, attapulgite and allophane or mixtures of two or more thereof.

15. (Original) A method as claimed in claim 14 wherein the natural clay is bentonite.

16. (Original) A method as claimed in claim 13 wherein the synthetic clays are selected from dawsonite or XAM.

17. (Currently Amended) A method as claimed in ~~any one of the preceding claims~~ claim 1 wherein the granulating processes is selected from granulating using rotating inclined tables, rotating drums, fluidised beds, high speed choppers or extrusion.

18. (Currently Amended) A method as claimed in ~~any one of the preceding claims~~ claim 1 wherein the drying step forms part of the granulating process or takes place as a separate step to the formation of the granules.

19. (Original) A method as claimed in claim 18 wherein the drying step is carried out by passing the granules through a drier operated at elevated temperature.

20. (Original) A method as claimed in claim 19 wherein the drier is operated at a temperature of from 20°C to 100°C.

21. (Currently Amended) A method as claimed in ~~any one of the preceding claims~~ claim 1 wherein the waste material is a waste sludge or slurry having a high water content, and the method further includes the steps of removing part of the water from the waste slurry or sludge prior to contacting with the layered double hydroxide material and the clay material and treating the removed part of the water to remove dissolved anions therefrom.

22. (Original) A method as claimed in claim 21 wherein the removed part of the water may be contacted with a layered double hydroxide material to remove dissolved anions.

23. (Original) A method as claimed in claim 22 wherein the removed part of the water is contacted with hydrotalcite containing nitrate as an interlayer anion and nitrate anions are not removed from the water and the water is subjected to a denitrification process.

24. (Currently Amended) A method as claimed in claim 22 ~~or claim 23~~ wherein the layered double hydroxide material that is used to treat the removed part of the water does not become saturated with the anions removed from the water and the layered double hydroxide material that is contacted with the water is added to the waste sludge or slurry, either as all of the layered double hydroxide material added to the waste sludge or slurry or as a complement to other layered double hydroxide material added to the waste sludge or slurry.

25. (Currently Amended) A method as claimed in ~~any one of claims 1 to 21~~ claim 1 wherein the waste material is a waste sludge or slurry having a high water content, and the method further includes the steps of removing part of the water from the waste slurry or sludge prior to contacting with the layered double hydroxide material and the clay material and reusing the water.

26. (Original) A method as claimed in claim 1 wherein the waste material is a relatively dry material, such as chicken manure from a battery farm, and water is added to the waste material in order to obtain a workable mixture.

27. (Original) A method as claimed in claim 26 wherein the water is added to the waste material prior to mixing with the layered double hydroxide material or added together with or after addition of one or both of the layered double hydroxide material and the clay material to the waste material.

28. (Currently Amended) A method as claimed in ~~any one of the preceding claims~~ claim 1 wherein the granules are subjected to a disinfection treatment to kill deleterious organisms therein.

29. (Original) A method as claimed in claim 28 wherein the disinfection treatment is a heat treatment or an irradiation treatment.

30. (Original) A method as claimed in claim 29 wherein the disinfection treatment is a heat treatment that is or forms part of the drying step.

STIC
Scientific & Technical Information Center

VOLUNTARY SEARCH FEEDBACK

Art Unit ..... App./Serial # .....

Relevant prior art found

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest
- ☐ Helped better understand invention
- ☐ Helped better understand state of the art in technology

Types ☐ Foreign Patent(s) ☐ Non-Patent Literature

Relevant prior art not found

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining the patentability or understanding of the invention.

COMMENTS

.....

.....

.....

.....

.....

.....

Questions about the scope or the results of the search?
Contact your EIC searcher or Team Leader.

Please submit completed form to your EIC

STIC USE ONLY 12/07

Today's Date .....

Additional Notes if applicable (please indicate all actions including emails, phone calls, and individuals assisting):

```
=> fil reg
FILE 'REGISTRY' ENTERED AT 15:20:00 ON 26 AUG 2008
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2008 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:   25 AUG 2008  HIGHEST RN 1043631-35-1
DICTIONARY FILE UPDATES:  25 AUG 2008  HIGHEST RN 1043631-35-1

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH July 5, 2008.

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document.  For information
on property searching in REGISTRY, refer to:

http://www.cas.org/support/stngen/stndoc/properties.html

=> d his nofile

     (FILE 'HOME' ENTERED AT 14:45:09 ON 26 AUG 2008)

     FILE 'HCAPLUS' ENTERED AT 14:45:18 ON 26 AUG 2008
L1            1 SEA ABB=ON  PLU=ON  US20070050950/PN
                SEL RN

     FILE 'REGISTRY' ENTERED AT 14:45:26 ON 26 AUG 2008
L2            7 SEA ABB=ON  PLU=ON  (12068-50-7/BI OR 12172-71-3/BI OR
                12173-60-3/BI OR 12174-11-7/BI OR 12304-65-3/BI OR
                1318-74-7/BI OR 1318-93-0/BI)

     FILE 'LREGISTRY' ENTERED AT 14:45:37 ON 26 AUG 2008
L3         1625 SEA ABB=ON  PLU=ON  ((MG OR CA OR SR OR BA OR CU OR ZN
                OR CD)(L)O(L)H)/ELS
L4         2969 SEA ABB=ON  PLU=ON  ((FE OR RU OR CO OR RH OR NI OR PD
                OR AU OR AL OR GA OR IN)(L)O(L)H)/ELS

     FILE 'REGISTRY' ENTERED AT 14:48:32 ON 26 AUG 2008
L5       336392 SEA ABB=ON  PLU=ON  ((MG OR CA OR SR OR BA OR CU OR ZN
                OR CD)(L)O(L)H)/ELS
L6       709361 SEA ABB=ON  PLU=ON  ((FE OR RU OR CO OR RH OR NI OR PD
                OR AU OR AL OR GA OR IN)(L)O(L)H)/ELS
L7      1023690 SEA ABB=ON  PLU=ON  (L5 OR L6) NOT RN>=1
L8            6 SEA ABB=ON  PLU=ON  L2 AND L7
L9        21119 SEA ABB=ON  PLU=ON  L7 AND (OH OR HO)
L10           4 SEA ABB=ON  PLU=ON  L2 AND L9
L11           2 SEA ABB=ON  PLU=ON  L8 NOT L10
                D SCA
L12       70386 SEA ABB=ON  PLU=ON  L7 AND H2O
L13           4 SEA ABB=ON  PLU=ON  L2 AND L12
L14       85970 SEA ABB=ON  PLU=ON  L9 OR L12
L15           6 SEA ABB=ON  PLU=ON  L2 AND L14
```

```
     FILE 'HCAPLUS' ENTERED AT 14:58:22 ON 26 AUG 2008
L16        31096 SEA ABB=ON  PLU=ON  L15
L17              QUE ABB=ON  PLU=ON  MANURE OR FECES OR FECULENCE OR
                 STOOL OR DUNG
L18          298 SEA ABB=ON  PLU=ON  L14(L)L17
                 D KWIC
L19              QUE ABB=ON  PLU=ON  CLAY?
L20              QUE ABB=ON  PLU=ON  BENTONIT? OR CERAMIC? OR PHYLLOSILICA
                 T? OR MONTMORILLONIT? OR TONSTEIN? OR KAOLINIT? OR
                 MONTMORILLONITE(2A)SMECTIT? OR ILLIT? OR CHLORIT?
L21           39 SEA ABB=ON  PLU=ON  L18 AND (L19 OR L20)
L22          320 SEA ABB=ON  PLU=ON  (DOUBL?(3A)HYDROXID?)(3A)(MATERIAL
                 OR CHEMICAL OR AGENT OR ADDITIVE OR MODIF?)
L23           50 SEA ABB=ON  PLU=ON  L22 AND (L19 OR L20)
                 D KWIC 1-2
L24            1 SEA ABB=ON  PLU=ON  L23 AND L17
L25           32 SEA ABB=ON  PLU=ON  L21 AND L19
L26           28 SEA ABB=ON  PLU=ON  L21 AND (PY<=2003 OR PRY<=2003 OR
                 AY<=2003)
L27              QUE ABB=ON  PLU=ON  MIX? OR BLEND? OR ADMIX? OR COMMIX?
                 OR IMMIX? OR INTERMIX? OR COMBIN?
L28           10 SEA ABB=ON  PLU=ON  L26 AND L27
L29           18 SEA ABB=ON  PLU=ON  L26 NOT L28


=> fil hcap
FILE 'HCAPLUS' ENTERED AT 15:20:03 ON 26 AUG 2008
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2008 AMERICAN CHEMICAL SOCIETY (ACS)
```



```
FILE COVERS 1907 - 26 Aug 2008  VOL 149 ISS 9
FILE LAST UPDATED: 25 Aug 2008  (20080825/ED)

HCAplus now includes complete International Patent Classification (IPC)
reclassification data for the second quarter of 2008.

New CAS Information Use Policies, enter HELP USAGETERMS for details.

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

=> d ibib abs hitstr hitind l28 1-10

L28  ANSWER 1 OF 10  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:         2004:996095  HCAPLUS
DOCUMENT NUMBER:          141:415268
TITLE:                    Stabilization of feedlot waste manure
```

INVENTOR(S): Gillman, Gavin Patrick
PATENT ASSIGNEE(S): Commonwealth Scientific and Industrial Research Organisation, Australia
SOURCE: PCT Int. Appl., 24 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004099104	A1	20041118	WO 2004-AU580	20040505
			<--	
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2004235829	A1	20041118	AU 2004-235829	20040505
			<--	
CA 2524317	A1	20041118	CA 2004-2524317	20040505
			<--	
EP 1638905	A1	20060329	EP 2004-731115	20040505
			<--	
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK				
NZ 543303	A	20070427	NZ 2004-543303	20040505
			<--	
US 20070050950	A1	20070308	US 2005-555665	20051104
			<--	
PRIORITY APPLN. INFO.:			AU 2003-902178 A	20030507
			<--	
			WO 2004-AU580 W	20040505

AB A method for treating waste material containing manure from animal

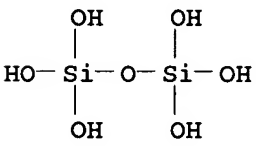
feedlots includes the steps of **mixing** the material with a layered double hydroxide material, a **clay** material and optionally water to form a **mixture**, the layered double hydroxide material being added in an amount sufficient to sequester anions present in the waste sludge or slurry, the layered double hydroxide material and **clay** material and optionally water being added in an amount sufficient to form a workable **mixture** for granulating, and subjecting the **mixture** to granulating and drying. The method allows intractable feedlot wastes to be treated and disposed.

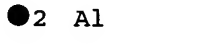
IT **1318-74-7**, **Kaolinite**, uses **12068-50-7**, Halloysite **12172-71-3**, Allophane **12173-60-3**, **Illite 12174-11-7**, Attapulgite **12304-65-3D**, Hydrotalcite, chloride or nitrate interlayer anion
RL: NUU (Other use, unclassified); USES (Uses)
(stabilizer of feedlot waste **manure**)

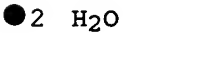
RN 1318-74-7 HCAPLUS
CN Kaolinite (Al2(OH)4(Si2O5)) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O5Si2	1	20328-07-8
HO	4	14280-30-9
Al	2	7429-90-5

RN 12068-50-7 HCAPLUS
CN Halloysite (Al2(Si2O7).2H2O) (CA INDEX NAME)







RN 12172-71-3 HCAPLUS
CN Allophane (Al2O1-1.7(SiO3)1.3-2.xH2O) (CA INDEX NAME)

CM 1

CRN 113892-28-7
CMF Al . O3 Si . O
CCI TIS

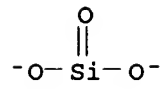
CM 2

CRN 17778-80-2
CMF O

O

CM 3

CRN 15593-90-5
CMF O3 Si



CM 4

CRN 7429-90-5
CMF Al

Al

RN 12173-60-3 HCAPLUS
CN Illite ([Al1.75(Fe0-1Mg0-1)0.25]K0.75(Si3.5Al0.5)[(OH)0.5-1F0-0.5]2O10) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O5Si2	1.75	20328-07-8
O	1.25	17778-80-2
F	0 - 1	14762-94-8
HO	1 - 2	14280-30-9
K	0.75	7440-09-7
Mg	0 - 0.25	7439-95-4
Fe	0 - 0.25	7439-89-6
Al	2.25	7429-90-5

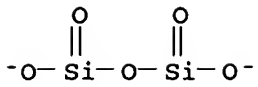
RN 12174-11-7 HCAPLUS
CN Palygorskite ([Mg(Al0.5-1Fe0-0.5)]Si4(OH)O10.4H2O) (CA INDEX NAME)

CM 1

CRN 111059-81-5
CMF Al . Fe . H O . Mg . O5 Si2
CCI TIS

CM 2

CRN 20328-07-8
CMF O5 Si2



CM 3

CRN 14280-30-9
CMF H O

OH-

CM 4

CRN 7439-95-4
CMF Mg

Mg

CM 5

CRN 7439-89-6
CMF Fe

Fe

CM 6

CRN 7429-90-5
CMF Al

Al

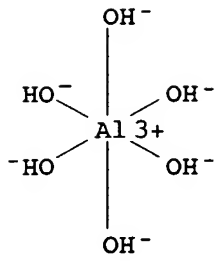
RN 12304-65-3 HCAPLUS
CN Hydrotalcite (Mg6(CO3)[Al(OH)6]2(OH)4.4H2O) (9CI) (CA INDEX NAME)

CM 1

CRN 11097-59-9
CMF C O3 . 2 Al H6 O6 . 4 H O . 6 Mg

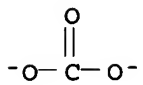
CM 2

CRN 18893-33-9
CMF Al H6 O6
CCI CCS



CM 3

CRN 3812-32-6
CMF C O3



IC ICM C05F003-00
ICS C05G003-04
CC 60-4 (Waste Treatment and Disposal)
IT **Bentonite**, uses
Chlorite-group minerals
Clays, uses
RL: NUU (Other use, unclassified); USES (Uses)
(stabilizer of feedlot waste manure)
IT **1318-74-7**, **Kaolinite**, uses 1318-93-0,
Montmorillonite, uses **12068-50-7**, Halloysite
12172-71-3, Allophane **12173-60-3**, **Illite**
12174-11-7, Attapulgite **12304-65-3D**, Hydrotalcite,
chloride or nitrate interlayer anion
RL: NUU (Other use, unclassified); USES (Uses)
(stabilizer of feedlot waste **manure**)
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:810721 HCAPLUS
DOCUMENT NUMBER: 140:4510
TITLE: Soil mineralogy evolution in the INRA 42 plots experiment (Versailles, France)
AUTHOR(S): Pernes-Debuyser, A.; Pernes, M.; Velde, B.; Tessier, D.
CORPORATE SOURCE: INRA, Unite de Science du Sol, Versailles, 78026, Fr.
SOURCE: Clays and Clay Minerals (**2003**), 51(5), 577-584
CODEN: CLCMAB; ISSN: 0009-8604
PUBLISHER: Clay Minerals Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Natural soils change by long-term pedogenetic mechanisms, but tillage effects can also strongly affect the evolution of soils,

mainly their physicochem. properties. The paper describes the impact of fertilizers and amendments on soil mineralogy in exptl. plots, without plant interaction. The soils of 42 plots have been managed with fertilizers without plant growth since 1929. Strong changes in pH were observed and cation exchange capacities doubled between low and high pH (from 3.6 to 8.2). Strong acidification caused more evolution in the **clay** particle distribution without selective action on the **clay** composition While the **clay** content varied only slightly, the organic matter content changed considerably, decreasing with nonorg. treatment and increasing in the plot with manure treatment. The major **clay** minerals in the exptl. plots are two disordered **illite**-smectite **mixed**-layer minerals, with minor amts. of **illite**/mica and **kaolinite.** Most treatments effected only minor changes in **clay** mineralogy. However the **illite** (non-expandable mineral) content increased in plots with K addition either as KCl treatment or in manure amendments by increasing the **illite** content and the **illite** (non-expandable layer) content of the I-S minerals. Manure changed the I-S mineral to a greater extent.

IT **1318-74-7, Kaolinite.**, processes
12173-60-3, Illite
RL: GPR (Geological or astronomical process); PROC (Process)
(long-term effects of fertilizers, amendments and **manure** or soil mineralogy and composition)

RN 1318-74-7 HCAPLUS
CN Kaolinite (Al2(OH)4(Si2O5)) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O5Si2	1	20328-07-8
HO	4	14280-30-9
Al	2	7429-90-5

RN 12173-60-3 HCAPLUS
CN Illite ([Al1.75(Fe0-1Mg0-1)0.25]K0.75(Si3.5Al0.5)[(OH)0.5-1F0-0.5]2O10) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O5Si2	1.75	20328-07-8
O	1.25	17778-80-2
F	0 - 1	14762-94-8
HO	1 - 2	14280-30-9
K	0.75	7440-09-7
Mg	0 - 0.25	7439-95-4
Fe	0 - 0.25	7439-89-6
Al	2.25	7429-90-5

CC 19-3 (Fertilizers, Soils, and Plant Nutrition)
IT **Clay** minerals
Mica-group minerals, processes
Smectite-group minerals
RL: GPR (Geological or astronomical process); PROC (Process)
(long-term effects of fertilizers, amendments and manure or soil mineralogy and composition)
IT **1318-74-7, Kaolinite.**, processes
12173-60-3, Illite

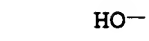
RL: GPR (Geological or astronomical process); PROC (Process)
(long-term effects of fertilizers, amendments and **manure** or soil mineralogy and composition)
REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 3 OF 10 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:478883 HCAPLUS
DOCUMENT NUMBER: 139:57266
TITLE: Inorganic salt removal agent and its production for soil amendment and agricultural plant growth using wastes
INVENTOR(S): Kuraoka, Shoji; Fujitsuka, Hitoshi; Yamamoto, Keiichi
PATENT ASSIGNEE(S): Keiprasu Y. K., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003175383	A	20030624	JP 2001-379039	200112 12
			<--	
PRIORITY APPLN. INFO.:			JP 2001-379039	200112 12
			<--	

AB The inorg. salt removal agent is produced by impregnating a raw material such as activated carbon or another adsorbent with a **mixed** solution of MgSO4, FeSO4, and ascorbic acid or spraying the **mixed** solution to the raw material; **mixing** a **mixture** of an ammonium compound, a Ca compound, a K compound, and/or urea with the resulting raw material; and forming the obtained raw material **mixture** into granules or particles by **mixing** the raw material **mixture** with a binder and water in flat container in inclined state. The inorg. salt removal agent is an activated carbon or another adsorbent in form of granulars or particles whose surface adsorbs cations dissociated from MgSO4, FeSO4, and ascorbic acid which are partially replaced with cations dissociated from an ammonium compound, a Ca compound, a K compound, and/or urea and the agent contains the ammonium compound, the Ca compound, the K compound, and/or urea. The agent can remove and immobilize NaCl, CaCl2, KCl and the like which are contained in garbage, livestock manure, and soil and noxious to plants and is useful for soil amendments for plant growth.
IT **1305-62-0**, Slaked lime, processes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(adsorbent treated with; adsorbent-based salt removal agent for removing salts from garbage, livestock **manure**, and soil for soil amendments)
RN 1305-62-0 HCAPLUS

CN Calcium hydroxide (Ca(OH)2) (CA INDEX NAME)



IC ICM B09C001-02
ICS B01J002-14; B01J020-20; B09B003-00; B09C001-08; C02F011-00
CC 60-4 (Waste Treatment and Disposal)
Section cross-reference(s): 17
IT **Bentonite**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(adsorbent; adsorbent-based salt removal agent for removing salts from garbage, livestock manure, and soil for soil amendments)
IT 50-81-7, Ascorbic acid, processes 57-13-6, Urea, processes **1305-62-0**, Slaked lime, processes 6484-52-2, Ammonium nitrate, processes 7487-88-9, Magnesium sulfate, processes 7720-78-7, Ferrous sulfate 7757-79-1, Potassium nitrate, processes 7783-20-2, Ammonium sulfate, processes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(adsorbent treated with; adsorbent-based salt removal agent for removing salts from garbage, livestock **manure**, and soil for soil amendments)

L28 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2000:341641 HCAPLUS
DOCUMENT NUMBER: 133:73536
TITLE: An investigation of plant growth in an organo-zeolitic substrate and its ecological significance
AUTHOR(S): Leggo, Peter J.
CORPORATE SOURCE: Department of Earth Sciences, University of Cambridge, Cambridge, CB2 3EQ, UK
SOURCE: Plant and Soil (**2000**), 219(1/2), 135-146
CODEN: PLSOA2; ISSN: 0032-079X
PUBLISHER: Kluwer Academic Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English
AB This work concerns a series of expts. designed to test and understand the effect of ammoniated zeolite on plant growth. The affinity of the zeolite mineral clinoptilolite for NH4+ is utilized in organo-zeolitic substrates to enhance plant growth. By comparing plants grown in substrates with and without ammoniated zeolite, an increase in plant dry weight of some 19% was shown to be due to the presence of the zeolitic NH4+-N. In this study, exptl. work has shown that in an organically enriched substrate an exponential diffusion of NH4+ occurs as a nonequil. reaction. It is suggested that ion-exchange is taking place in which soil Ca+2 is exchanged for lattice bound NH4+. Nitrifying bacteria, utilizing the diffusing NH4+, appear to protect seedlings from the effect of ammonium toxicity and in so doing act as a biol. buffer, allowing the plant to take up nitrogen at a rate which is most advantageous throughout its growth. Leaching expts. confirm the presence of very high soil nitrate concns. indicating that a large population of nitrifying bacteria is established. The ionic mobility of major cations is also greatly increased in the organo-zeolitic substrates. This behavior is already known to produce beneficial effects in the

rhizosphere, increasing aeration by flocculating colloidal **clay** particles and enabling the diffusion of metal ions to occur. Research reported elsewhere demonstrates that plants grown in organo-zeolitic substrates on toxic waste sites exhibit low uptake of toxic metals and it would, therefore, appear that the unique features of organo-zeolitic substrates have both nutritional and ecol. value.

IT **12173-10-3D**, Clinoptilolite ((K0-1Na0-1Ca0-0.5)6(Al6Si30O72).20H2O), ammonium-exchanged
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(plant growth substrate amended with composted zeolitic tuff-poultry **manure mixture** containing)

RN 12173-10-3 HCAPLUS

CN Clinoptilolite ((K0-1Na0-1Ca0-0.5)6(Al6Si30O72).20H2O) (CA INDEX NAME)

CM 1

CRN 209482-44-0
CMF Al . Ca . K . Na . O . Si
CCI TIS

CM 2

CRN 17778-80-2
CMF O

O

CM 3

CRN 7440-70-2
CMF Ca

Ca

CM 4

CRN 7440-23-5
CMF Na

Na

CM 5

CRN 7440-21-3
CMF Si

Si

CM 6

CRN 7440-09-7
CMF K

K

CM 7

CRN 7429-90-5
CMF Al

Al

CC 19-5 (Fertilizers, Soils, and Plant Nutrition)
IT Diffusion
(ammonium diffusion in plant growth substrate amended with composted zeolitic tuff-poultry manure **mixture**)
IT Mineral elements, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(in leachate of plant growth substrate amended with composted zeolitic tuff-poultry manure **mixture** containing ammoniated clinoptilolite)
IT Nitrifying bacteria
(in plant growth substrate amended with composted zeolitic tuff-poultry manure **mixture** in relation to ammonium utilization)
IT Growth and development, plant
(on substrate amended with composted zeolitic tuff-poultry manure **mixture** in relation to ammonium behavior)
IT Compost
(plant growth in substrate amended with composted zeolitic tuff-poultry manure **mixture**)
IT Spring wheat
(plant growth on substrate amended with composted zeolitic tuff-poultry manure **mixture** containing ammoniated clinoptilolite)
IT Manure
(plant growth substrate amended with composted zeolitic tuff-poultry manure **mixture**)
IT Zeolite tuff
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(plant growth substrate amended with composted zeolitic tuff-poultry manure **mixture**)
IT Soil substitutes
(plant growth substrate amended with composted zeolitic tuff-poultry manure **mixture** containing ammoniated clinoptilolite)
IT 14797-55-8, Nitrate, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study);

FORM (Formation, nonpreparative); OCCU (Occurrence)
(ammonium utilization and available nitrogen species in plant growth substrate amended with composted zeolitic tuff-poultry manure **mixture**)

IT 14798-03-9, Ammonium, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(diffusion in plant growth substrate amended with composted zeolitic tuff-poultry manure **mixture** and utilization by nitrifying bacteria)

IT 7439-95-4, Magnesium, biological studies 7440-09-7, Potassium, biological studies 7440-23-5, Sodium, biological studies 7440-70-2, Calcium, biological studies 7723-14-0, Phosphorus, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(in leachate of plant growth substrate amended with composted zeolitic tuff-poultry manure **mixture** containing ammoniated clinoptilolite)

IT **12173-10-3D**, Clinoptilolite ((K0-1Na0-1Ca0-0.5)6(Al6Si30O72).20H2O), ammonium-exchanged
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(plant growth substrate amended with composted zeolitic tuff-poultry **manure mixture** containing)

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 5 OF 10 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:711753 HCAPLUS
DOCUMENT NUMBER: 127:298114
ORIGINAL REFERENCE NO.: 127:58171a,58174a
TITLE: Method for treating of fecal water
INVENTOR(S): Bereczk, Imre; Bellayne Kovacs, Tatjana; Martonosi, Gyoergy; Droppa, Kalman; Kuti, Janos; Miskucza, Peter
PATENT ASSIGNEE(S): Katalizator Kereskedoe, Foevallalkozo es Innovacios Kft., Hung.
SOURCE: Hung. Teljes, 8 pp.
CODEN: HUXXBU
DOCUMENT TYPE: Patent
LANGUAGE: Hungarian
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
HU 75349	A2	19970528	HU 1989-2720	19890530
			<--	
PRIORITY APPLN. INFO.:			HU 1989-2720	19890530
			<--	

AB Urine and manure-containing wastewater from animal farms is treated by a **mixture** of **clay** minerals (e.g.

montmorillonite, clinoptilolite) containing SiO2 65-76 and Al2O3 9-13%, having particle size <63μ (1-100 g/1L wastewater) cellulose-containing ground materials (e.g. sawdust, plant waste, choped straw, biomass, etc. and a flocculating agent Ionic surfactant) 1-3000 ppm. The liquid phase can be released into the hydrol. network. The solid precipitate containing bacteria is treated by CaO (lime) for disinfection and can be recycled in agricultural activity.

IT **12173-10-3**, Clinoptilolite
RL: NUU (Other use, unclassified); USES (Uses)
(purification of urine and **manure** containing wastewaters by **mixture** of **clay** minerals containing silica and alumina, cellulose, flocculating agent, and lime.)

RN 12173-10-3 HCAPLUS

CN Clinoptilolite ((K0-1Na0-1Ca0-0.5)6(Al6Si30O72).20H2O) (CA INDEX NAME)

CM 1

CRN 209482-44-0
CMF Al . Ca . K . Na . O . Si
CCI TIS

CM 2

CRN 17778-80-2
CMF O

O

CM 3

CRN 7440-70-2
CMF Ca

Ca

CM 4

CRN 7440-23-5
CMF Na

Na

CM 5

CRN 7440-21-3
CMF Si

Si

CM 6

CRN 7440-09-7
CMF K

K

CM 7

CRN 7429-90-5
CMF Al

Al

IC ICM C02F001-00
CC 60-2 (Waste Treatment and Disposal)
ST manure wastewater purifn **clay** mineral cellulose
IT Biomass
Flocculants
Manure
Sawdust
Sterilization and Disinfection
Straw
Surfactants
Urine
Wastewater treatment
(purification of urine and manure containing wastewaters by **mixt** . of **clay** minerals containing silica and alumina, cellulose, flocculating agent, and lime.)
IT Lime (chemical)
RL: NUU (Other use, unclassified); USES (Uses)
(purification of urine and manure containing wastewaters by **mixt** . of **clay** minerals containing silica and alumina, cellulose, flocculating agent, and lime.)
IT 1318-93-0, **Montmorillonite**, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 9004-34-6, Cellulose, uses **12173-10-3**, Clinoptilolite
RL: NUU (Other use, unclassified); USES (Uses)
(purification of urine and **manure** containing wastewaters by **mixture** of **clay** minerals containing silica and alumina, cellulose, flocculating agent, and lime.)

L28 ANSWER 6 OF 10 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:467524 HCAPLUS
DOCUMENT NUMBER: 127:80878
ORIGINAL REFERENCE NO.: 127:15505a,15508a
TITLE: Molded cattle manure compost and its manufacture
INVENTOR(S): Kanamaru, Naoaki; Kanemitsu, Mikio; Tsuga, Konosuke; Omori, Sadao; Goto, Takashi; Fukumori, Isao; Kishi, Hideyuki; Aibe, Shunji; Onodera, Yasuyoshi; Noguchi, Katsunori
PATENT ASSIGNEE(S): Seibutsu Kei Tokutei Sangyo Gijutsu-kenkyu Suishin Kiko, Japan; Katakura Chikkarin Co.,

Ltd.
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09132488	A	19970520	JP 1995-286071	19951102

<--

PRIORITY APPLN. INFO.: JP 1995-286071 19951102

<--

AB A water-absorbing **clay** mineral (and/or a liming agent) is added to cattle manure compost and, after **mixing**, molded by the pressure forming method or pressure extrusion to obtain compost with a hardness suitable for machine application without drying. An acidic material may be added to adjust the pH. Thus, cattle manure compost (45% moisture) 80 and attapulgite 20 parts were **mixed** and pressure extruded to obtain molded compost (moisture content, 37%) with a hardness of 3.7 kg.

IT **12174-11-7**, Attapulgite
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(in molded cattle **manure** compost manufacture)

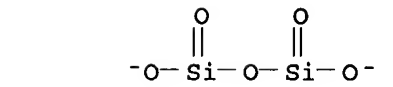
RN 12174-11-7 HCAPLUS
CN Palygorskite ([Mg(Al0.5-1Fe0-0.5)]Si4(OH)O10.4H2O) (CA INDEX NAME)

CM 1

CRN 111059-81-5
CMF Al . Fe . H O . Mg . O5 Si2
CCI TIS

CM 2

CRN 20328-07-8
CMF O5 Si2



CM 3

CRN 14280-30-9
CMF H O

OH^-

CM 4

CRN 7439-95-4
CMF Mg

Mg

CM 5

CRN 7439-89-6
CMF Fe

Fe

CM 6

CRN 7429-90-5
CMF Al

Al

IC ICM C05F003-00
ICS C05G003-00
CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
ST molded manure compost manuf **clay** mineral; liming agent
molded manure compost
IT **Clay** minerals
Lime (chemical)
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(in molded cattle manure compost manufacture)
IT **12174-11-7**, Attapulgite
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(in molded cattle **manure** compost manufacture)

L28 ANSWER 7 OF 10 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1993:26828 HCAPLUS
DOCUMENT NUMBER: 118:26828
ORIGINAL REFERENCE NO.: 118:4881a,4884a
TITLE: Water-absorbing deodorants for odorous gases
INVENTOR(S): Tanaka, Eiji; Tsushima, Tetsuya
PATENT ASSIGNEE(S): Kuraray Chemical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
---	---	---	---	---

JP 04290547 A 19921015 JP 1991-105005
199103
15
<--
PRIORITY APPLN. INFO.: JP 1991-105005
199103
15
<--

AB Aqueous solns. containing silicate salts and ≥1 metal salts of Ag, Al, Ti, V, Cr, Mn, Fe, Co, Ni, Sn, Cu, Zn, Cd, and Pb are adjusted to pH 9-11, kept at 45-70° to form sols containing silicate salts and metal salts, neutralized by acids, and the resulting metal salt-containing silicate gels are **blended** with **bentonite** and isobutene-maleic anhydride copolymer-polyethyleneimine complex to give title agents, useful for deodorization of animal manures. The adsorbents show good thermal stability and remove odorous gases, e.g. H2S, NH3, mercaptans, amines, aldehydes, etc. in high efficiency.

IT **1309-42-8**, Magnesium hydroxide
RL: OCCU (Occurrence)
(silicate gels containing, in water-absorbing adsorbents, for deodorization of animal **manure**)

RN 1309-42-8 HCAPLUS
CN Magnesium hydroxide (Mg(OH)2) (CA INDEX NAME)

HO—Mg—OH

IC ICM B01J020-26
ICS A61L009-01; A61L009-16; B01D053-04; B01J020-10
CC 59-6 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 48

IT **Bentonite**, uses
RL: USES (Uses)
(deodorants containing, water-absorbing, for treatment of animal manure)

IT Air purification
(deodorization, agents for, metal salt-containing silicate gels and **bentonite** and water-absorbing polymers as, for animal manure treatment)

IT **1309-42-8**, Magnesium hydroxide 7439-89-6D, Iron, salts 7439-92-1D, Lead, salts 7439-96-5D, Manganese, salts 7440-02-0D, Nickel, salts 7440-22-4D, Silver, salts 7440-31-5D, Tin, salts 7440-32-6D, Titanium, salts 7440-43-9D, Cadmium, salts 7440-47-3D, Chromium, salts 7440-48-4D, Cobalt, salts 7440-50-8D, Copper, salts 7440-62-2D, Vanadium, salts 7733-02-0, Zinc sulfate 10043-01-3, Aluminum sulfate
RL: OCCU (Occurrence)
(silicate gels containing, in water-absorbing adsorbents, for deodorization of animal **manure**)

L28 ANSWER 8 OF 10 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1989:176582 HCAPLUS
DOCUMENT NUMBER: 110:176582
ORIGINAL REFERENCE NO.: 110:29259a,29262a
TITLE: Behavior of sepiolite, vermiculite, and **montmorillonite** as supports in anaerobic digesters
AUTHOR(S): Perez Rodriguez, J. L.; Carretero, M. I.;

Maqueda, C.
CORPORATE SOURCE: Inst. Cienc. Mater., CSIC, Seville, 41080, Spain
SOURCE: Applied Clay Science (1989), 4(1), 69-82
CODEN: ACLSER; ISSN: 0169-1317
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Anaerobic fermentation of piggery wastewater-manure **mixts.** was carried out using **clay** minerals (sepiolite, vermiculite, and **montmorillonite**) as biofilm supports; expanded polyurethane and PVC were also used, for comparison. Treated sepiolite in suspension promoted growth and fixation of Methanosarcina to the particle surface, while there was no growth on the other **clays**; no bacteria were observed in the polymeric supports either. The digestion process may be affected by Mg released from the supports.

IT **1318-00-9**, Vermiculite **63800-37-3**, Sepiolite (Mg2H2(SiO3)3.xH2O)
RL: USES (Uses)
(bacteria supports, in biogas manufacture, from piggery wastewater and **manure**)

RN 1318-00-9 HCAPLUS
CN Vermiculite (Mg0.33[Mg2-3(Al0-1Fe0-1)O-1](Si2.33-3.33Al0.67-1.67)(OH)2O10.4H2O) (CA INDEX NAME)

CM 1

CRN 122872-60-0
CMF Al . Fe . H O . Mg . O3 Si . O
CCI TIS

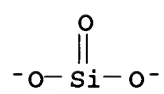
CM 2

CRN 17778-80-2
CMF O

O

CM 3

CRN 15593-90-5
CMF O3 Si



CM 4

CRN 14280-30-9
CMF H O

OH^-

CM 5

CRN 7439-95-4
CMF Mg

Mg

CM 6

CRN 7439-89-6
CMF Fe

Fe

CM 7

CRN 7429-90-5
CMF Al

Al

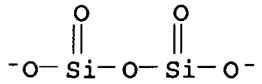
RN 63800-37-3 HCAPLUS
CN Sepiolite (Mg4(OH)2(Si2O5)3.6H2O) (CA INDEX NAME)

CM 1

CRN 66590-44-1
CMF H O . Mg . O5 Si2
CCI TIS

CM 2

CRN 20328-07-8
CMF O5 Si2



CM 3

CRN 14280-30-9
CMF H O

OH^-

CM 4

CRN 7439-95-4
CMF Mg

Mg

CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 45, 57, 60
ST biogas piggery wastewater manure digestion; **clay** support anaerobic fermn Methanosarcina; sepiolite vermiculite support fermn biogas; **montmorillonite** support fermn wastewater biogas; PVC polyurethane support fermn biogas
IT Wastewater
(from piggery, biogas manufacture from, **clay** support for bacteria in)
IT Methanosarcina
(growth and activity of, **clay** support effect on, in anaerobic digester, biogas yield in relation to)
IT Manure
(pig, biogas manufacture from, **clay** support for bacteria in)
IT Fuel gas manufacturing
(biogas, from piggery wastewater and manure, **clay** supports for bacteria in)
IT **1318-00-9**, Vermiculite 1318-93-0, **Montmorillonite**, uses and miscellaneous 9002-86-2, PVC **63800-37-3**, Sepiolite ($Mg_2H_2(SiO_3)_3.xH_2O$)
RL: USES (Uses)
(bacteria supports, in biogas manufacture, from piggery wastewater and **manure**)
IT 74-82-8P, Methane, preparation
RL: PREP (Preparation)
(manufacture of gas containing, from piggery wastewater and manure, **clay** support for bacteria in)
IT 7439-95-4, Magnesium, uses and miscellaneous
RL: USES (Uses)
(release of, from **clay** supports, in anaerobic digester, biogas yield in relation to)

L28 ANSWER 9 OF 10 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1981:514008 HCAPLUS
DOCUMENT NUMBER: 95:114008
ORIGINAL REFERENCE NO.: 95:19121a,19124a
TITLE: Changes in the electrokinetic characteristics of gypsum-treated soda-solonetz soil
AUTHOR(S): Kurbatov, A. I.; Goncharov, P. P.; Zubareva, R. D.
CORPORATE SOURCE: USSR
SOURCE: Doklady TSKhA (**1980**), 263, 90-4
CODEN: DTSKAG; ISSN: 0366-984X
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB Gypsum [**13397-24-5**] application at a rate calculated on the

basis of total content of exchangeable Na in the 0-20-cm layer improved best the phys. and physicochem. properties of soda-solonetz soils. The content of sorbed Na decreased from 15.4-26.3 mequiv/100 g to 2.3-18.1 mequiv/100 g, and, depending on soil layer, the pH decreased from 8.95 to 7-7.35, and the content of H2O-peptized **clay** decreased from 28.1-36.9 to 7.5-10%. The treatment increased the filtration coefficient and the average pore diameter **Combining** gypsum with **manure** application was most effective.

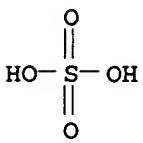
CC 19-3 (Fertilizers, Soils, and Plant Nutrition)

L28 ANSWER 10 OF 10 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1970:455114 HCAPLUS
DOCUMENT NUMBER: 73:55114
ORIGINAL REFERENCE NO.: 73:9059a,9062a
TITLE: Reclamation of steppe solonetz in the Moldavian SSR
AUTHOR(S): Shestakov, I. L.; Suvak, P. A.; Mirochnik, A. S.
CORPORATE SOURCE: USSR
SOURCE: Fizika i Melioratsiya Pochv Moldavii (**1968**), No. 1, 9-52
CODEN: FMPMBF; ISSN: 0532-9302
DOCUMENT TYPE: Journal
LANGUAGE: Russian

AB Steppe solonetz and alkaline chernozem soils of the Moldavian SSR were described. The soils were of heavy **clay** structure, containing 44-55% silt particles. Chemical anal. showed the content of water-soluble salts of the upper horizon to be 0.2-0.35%. The content of the exchangeable Na of the upper horizon was low, 6-7% of the absorption capacity of the soil; the content of the exchangeable Na of the lower solonetz horizons was higher, 30-34% of the absorption capacity. Field expts. were conducted to determine the efficiency of the chemical (CaSO4 addition) and deep ploughing reclamation methods. CaSO4 alone increased fertility, but the most effective treatment consisted of CaSO4 and farm manure. This **combination** had the longest lasting effect on crop yield in the years following the application. The effect of deep ploughing for improving the soil fertility was weaker than the treatment with CaSO4.

IT **13397-24-5**, biological studies
RL: BIOL (Biological study)
(soil reclamation by farmyard **manure** and)

RN 13397-24-5 HCAPLUS
CN Gypsum (Ca(SO4).2H2O) (CA INDEX NAME)



CC 20 (Fertilizers, Soils, and Plant Nutrition)
IT **13397-24-5**, biological studies
RL: BIOL (Biological study)
(soil reclamation by farmyard **manure** and)

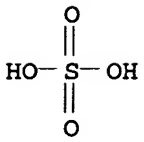
=> d ibib abs hitstr hitind l29 1-18

L29 ANSWER 1 OF 18 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2008:928307 HCAPLUS
DOCUMENT NUMBER: 149:152429
TITLE: Method for manufacture of suspension organomineral fertilizer
INVENTOR(S): Hoffmann, Jozef; Chojnacki, Andrzej; Gorecki, Henryk; Hoffmann, Krystyna; Gorecka, Helena
PATENT ASSIGNEE(S): Politechnika Wroclawska, Pol.
SOURCE: Pol., 6pp.
CODEN: POXXA7
DOCUMENT TYPE: Patent
LANGUAGE: Polish
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PL 197609	B1	20080430	PL 2003-360443 <--	20030602

PRIORITY APPLN. INFO.: PL 2003-360443 <-- 20030602

AB The claimed suspension organomineral fertilizers with microelements are made from liquid animal manure treated with mineral acids (sulfuric, phosphoric, nitric) to reach pH 7. Subsequently, macronutrient (N, P, K, Mg, Ca, S) and micronutrient (B, Mo, Cu, Fe, Mn, Zn, Co) components are dissolved in the liquid **Bentonite clays** (**montmorillonite**, attapulgite) can be used to increase the suspension stability. The fertilizers were tested on corn, sugar beet, and vegetable crops.
IT **7758-99-8**, Copper sulfate pentahydrate
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(manufacture of suspension organomineral fertilizers from acid-treated liquid **manure** with dissolved macronutrients (N, P, K, Mg, Ca, S) and micronutrients (B, Mo, Cu, Fe, Mn, Zn, Co))
RN 7758-99-8 HCAPLUS
CN Sulfuric acid copper(2+) salt (1:1), hydrate (1:5) (CA INDEX NAME)



● Cu(II)

●5 H_2O

CC 19-6 (Fertilizers, Soils, and Plant Nutrition)

IT **Clays**, biological studies
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(attapulgitic; manufacture of suspension organomineral fertilizers from acid-treated liquid manure with dissolved macronutrients (N, P, K, Mg, Ca, S) and micronutrients (B, Mo, Cu, Fe, Mn, Zn, Co))

IT **Bentonite**, biological studies
Superphosphates
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(manufacture of suspension organomineral fertilizers from acid-treated liquid manure with dissolved macronutrients (N, P, K, Mg, Ca, S) and micronutrients (B, Mo, Cu, Fe, Mn, Zn, Co))

IT **Clays**, biological studies
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(**montmorillonitic**; manufacture of suspension organomineral fertilizers from acid-treated liquid manure with dissolved macronutrients (N, P, K, Mg, Ca, S) and micronutrients (B, Mo, Cu, Fe, Mn, Zn, Co))

IT 57-13-6, Urea, biological studies 6484-52-2, Ammonium nitrate, biological studies 7439-89-6, Iron, biological studies 7439-95-4, Magnesium, biological studies 7439-96-5, Manganese, biological studies 7439-98-7, Molybdenum, biological studies 7440-09-7, Potassium, biological studies 7440-42-8, Boron, biological studies 7440-48-4, Cobalt, biological studies 7440-50-8, Copper, biological studies 7440-66-6, Zinc, biological studies 7440-70-2, Calcium, biological studies 7447-40-7, Potassium chloride (KCl), biological studies 7664-38-2, Phosphoric acid, biological studies 7664-41-7, Ammonia, biological studies 7664-93-9, Sulfuric acid, biological studies 7697-37-2, Nitric acid, biological studies 7704-34-9, Sulfur, biological studies 7720-78-7, Ferrous sulfate 7722-76-1, MonoAmmonium phosphate 7723-14-0, Phosphorus, biological studies 7727-37-9, Nitrogen, biological studies 7733-02-0, Zinc sulfate **7758-99-8**, Copper sulfate pentahydrate 7778-80-5, Potassium sulfate, biological studies 7783-28-0, DiAmmonium phosphate 7785-87-7 7786-30-3, Magnesium chloride, biological studies 10043-35-3, Boric acid (H_3BO_3), biological studies 12027-67-7, Ammonium molybdate 16389-88-1, Dolomite, biological studies
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(manufacture of suspension organomineral fertilizers from acid-treated liquid **manure** with dissolved macronutrients (N, P, K, Mg, Ca, S) and micronutrients (B, Mo, Cu, Fe, Mn, Zn, Co))

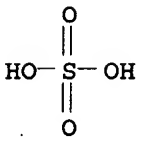
L29 ANSWER 2 OF 18 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2008:226475 HCAPLUS
DOCUMENT NUMBER: 148:261638
TITLE: Animal feed and methods for reducing ammonia and phosphorus levels in manure.
INVENTOR(S): Hale, Edward Carroll
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 44pp., Cont.-in-part of U.S. Ser. No. 868,070.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 20080044548	A1	20080221	US 2007-845426		20070827
			<--		
US 20050053700	A1	20050310	US 2004-868070		20040615
			<--		
PRIORITY APPLN. INFO.:			US 2003-499988P	P	20030904
			<--		
			US 2004-541500P	P	20040203
			US 2004-541622P	P	20040204
			US 2004-868070	A2	20040615

AB An animal feed is provided that employs a substantially indigestible cation exchanger capable of binding ammonium cations and an acidogenic substance to acidify an animal's manure and thereby create ammonium cations that can be bound by the cation exchanger. The animal feed reduces ammonia emissions from manure produced by animals fed the animal feed compared to the emissions obtained from manure when an acidogenic substance is fed alone and compared to the emissions obtained from manure when a cation exchange capacity material is fed alone. Other aspects provide a method of lowering ammonia emissions from manure. One embodiment provides a method for reducing soluble phosphorus levels in manure and a method for reducing total phosphorus levels in manure. Further aspects present a method that yields manure that may be used alone or in concert with other materials to act as a fertilizer having advantageous ecol. properties. Another aspect provides a method for reducing insect populations associated with manure. One embodiment is a composition for amending animal feed to produce animal waste that is lower in volatile ammonia and higher in nitrogen.

IT **12271-42-0**, Clinoptilolite **13397-24-5**, Gypsum,
biological studies
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(animal feed and methods for reducing ammonia and phosphorus levels in **manure**)
RN 12271-42-0 HCAPLUS
CN Clinoptilolite (Na(AlSi5O12).xH2O) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 13397-24-5 HCAPLUS
CN Gypsum (Ca(SO4).2H2O) (CA INDEX NAME)



● Ca

●2 H_2O

INCL 426630000; 119171000; 426531000
CC 18-1 (Animal Nutrition)
Section cross-reference(s): 5, 17, 19, 59
IT **Clays**, biological studies
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(calcium aluminosilicate; animal feed and methods for reducing ammonia and phosphorus levels in manure)
IT 56-87-1, Lysine, biological studies 63-68-3, L-Methionine, biological studies 65-85-0D, Benzoic acid, salts 72-19-5, L-Threonine, biological studies 73-22-3, L-Tryptophan, biological studies 1863-63-4, Ammonium benzoate 7439-95-4D, Magnesium, salts 7440-23-5, Sodium, biological studies 7440-70-2D, Calcium, salts 7681-38-1, Sodium bisulfate 7733-02-0, Zinc sulfate 9004-34-6, Cellulose, biological studies 12125-02-9, Ammonium chloride, biological studies **12271-42-0**, Clinoptilolite **13397-24-5**, Gypsum, biological studies 37341-58-5, Phytase
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(animal feed and methods for reducing ammonia and phosphorus levels in **manure**)
IT 1327-39-5, Calcium aluminosilicate
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(**clays**; animal feed and methods for reducing ammonia and phosphorus levels in manure)

L29 ANSWER 3 OF 18 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:372744 HCAPLUS
DOCUMENT NUMBER: 138:373435
TITLE: Treatment of manure for manufacture of odor-free and hygienic pellets and water
INVENTOR(S): Merai, Josef
PATENT ASSIGNEE(S): Germany

SOURCE: Ger. Offen., 10 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10153806	A1	20030515	DE 2001-10153806 <--	20011105

PRIORITY APPLN. INFO.: DE 2001-10153806 <-- 20011105

AB The invention concerns an economical procedure for treatment of cattle, pork and poultry manure which results by (1) flocculation of the manure with organic flocculation agents, (2) predewatering, thickening, and further dewatering, (3) pelletization, and (4) drying the resulting pellets up to 95-100% dry substance. Waste liquid resulting from step 2 is further flocculated, thereby resulting solid wastes are recycled into the manure and the waste liquid is chemical-biol. degraded and sanitized with NaOCl in a bioreactor. Furthermore a plant, a mobile plant, is preferably described for the carrying out of the procedure. The pellets can be used as fertilizer and fuel material.

IT **1305-62-0**, Calcium hydroxide, processes
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(flocculation additive; treatment of **manure** for manufacture of odor-free and hygienic pellets by flocculation with)

RN 1305-62-0 HCAPLUS
CN Calcium hydroxide (Ca(OH)2) (CA INDEX NAME)

HO—Ca—OH

IC ICM C02F011-12
ICS C12M001-107
CC 60-2 (Waste Treatment and Disposal)
Section cross-reference(s): 19, 52

IT **Clays**, processes
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(flocculation additives, for treatment of manure for manufacture of odor-free and hygienic pellets)

IT **1305-62-0**, Calcium hydroxide, processes
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(flocculation additive; treatment of **manure** for manufacture of odor-free and hygienic pellets by flocculation with)

L29 ANSWER 4 OF 18 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:17872 HCAPLUS
DOCUMENT NUMBER: 138:169439
TITLE: Organomineral granulated fertilizer containing chicken manure and zeolites
INVENTOR(S): Konyukhova, T. P.; Distanov, U. G.; Kikilo, D. A.; Mikhailova, O. A.; Kharisov, Yu. G.; Yakimov, A. V.; Makarov, A. I.
PATENT ASSIGNEE(S): Tsentral'nyi Nauchno-Issledovatel'skii Institut Geologii Nerudnykh Poleznykh Iskopaemykh, Russia
SOURCE: Russ., No pp. given
CODEN: RUXXE7
DOCUMENT TYPE: Patent
LANGUAGE: Russian
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
RU 2184102	C2	20020627	RU 2000-115146	20000609

PRIORITY APPLN. INFO.: RU 2000-115146 20000609

AB An organomineral fertilizer contains manure of poultry-breeding farms (20-40 weight %) and natural siliceous zeolite-containing rock (60-80 weight %). The said natural siliceous zeolite-containing rock has the following ratio of components, weight%: opal-cristobalite, 15-70; clinoptilolite, 6-45; **clay** minerals, 4-36; including: **montmorillonite**, 2-18; calcite, 3-36; fragmental, predominantly, quartz material, 2-22; feldspar, 0.8-5.0. At total content of opal-cristobalite, clinoptilolite and **montmorillonite** constitutes 55-80 weight% of the rock.

IT **12173-10-3**, Clinoptilolite
RL: AGR (Agricultural use); BSU (Biological study, unclassified); BIOL (Biological study); USES (Uses)
(organomineral granulated fertilizer containing chicken **manure** and zeolites)

RN 12173-10-3 HCAPLUS
CN Clinoptilolite ((K0-1Na0-1Ca0-0.5)6(Al6Si30O72).20H2O) (CA INDEX NAME)

CM 1

CRN 209482-44-0
CMF Al . Ca . K . Na . O . Si
CCI TIS

CM 2

CRN 17778-80-2
CMF O

O

CM 3

CRN 7440-70-2
CMF Ca

Ca

CM 4

CRN 7440-23-5
CMF Na

Na

CM 5

CRN 7440-21-3
CMF Si

Si

CM 6

CRN 7440-09-7
CMF K

K

CM 7

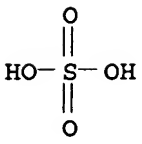
CRN 7429-90-5
CMF Al

Al

IC ICM C05F003-00
ICS C05G003-04
CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
IT **Clay** minerals
Feldspar-group minerals
Zeolite-group minerals
RL: AGR (Agricultural use); BSU (Biological study, unclassified);
BIOL (Biological study); USES (Uses)
(organomineral granulated fertilizer containing chicken manure and zeolites)

IT 1318-93-0, **Montmorillonite**, biological studies
12173-10-3, Clinoptilolite 13397-26-7, Calcite, biological studies 14464-46-1, Cristobalite 14808-60-7, Quartz, biological studies
RL: AGR (Agricultural use); BSU (Biological study, unclassified); BIOL (Biological study); USES (Uses)
(organomineral granulated fertilizer containing chicken **manure** and zeolites)

L29 ANSWER 5 OF 18 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2002:870919 HCAPLUS
DOCUMENT NUMBER: 138:368185
TITLE: Radio-tracer study on zinc use efficiency by rice
AUTHOR(S): Mythili, S.; Chitdeshwari, T.; Jayanthi, C.
CORPORATE SOURCE: Department of Agronomy, Tamil Nadu Agricultural University, Coimbatore, 641 003, India
SOURCE: Journal of Ecotoxicology & Environmental Monitoring (**2002**), 12(4), 271-276
CODEN: JEEMEJ; ISSN: 0971-0965
PUBLISHER: Palani Paramount Publications
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A greenhouse experiment was conducted on two Zn-deficient soils using rice as a test crop to study the effect of green manure on the relative efficacy of applied Zn. Radio-tracer, viz. 65Zn, was tagged to two sources of Zn (ZnSO4 and EDTA-Zn, at 5 kg Zn ha-1) to determine the contribution of fertilizer sources. Incorporation of Sesbania aculeata, at 10 ton ha-1, could contribute about 64, 4, 42, 0.6 and 11 kg N, P, K, Zn and S ha-1, resp. The beneficial effect of integrated use of green manure (GM) with inorg. fertilizer nutrients, particularly ZnSO4 in **clay** loam and EDTA-Zn in sandy loam soil, was evident due to higher uptake and increased dry matter yield at harvest. NPK + GM + ZnSO4 + gypsum application recorded the highest grain, straw and root yields in both the soils. The highest total Zn uptake of 3.87 mg pot-1 with NPK + GM + ZnSO4 + gypsum application and greater percentage of fertilizer Zn derivation was observed with NPK + ZnSO4 (86.20%) followed by NPK + EDTA-Zn alone. Zinc utilization from fertilizer and its use efficiency were found to be greater when the Zn sources particularly, ZnSO4 was applied.
IT **13397-24-5**, Gypsum, biological studies
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(effect of green **manure** and zinc source on zinc utilization efficiency by rice in relation to application of)
RN 13397-24-5 HCAPLUS
CN Gypsum (Ca(SO4).2H2O) (CA INDEX NAME)



● Ca

●2 H_2O

CC 19-7 (Fertilizers, Soils, and Plant Nutrition)
IT **13397-24-5**, Gypsum, biological studies
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(effect of green **manure** and zinc source on zinc utilization efficiency by rice in relation to application of)
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 6 OF 18 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2002:69391 HCAPLUS
DOCUMENT NUMBER: 136:106348
TITLE: Lime-**clay** suspension for the treatment of liquid manure
PATENT ASSIGNEE(S): Kalksteinwerk Vilshofen G.m.b.H., Germany
SOURCE: Eur. Pat. Appl., 5 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1174403	A2	20020123	EP 2001-117385	200107 18 <--
EP 1174403	A3	20030402		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
DE 10035432	A1	20020131	DE 2000-10035432	200007 20 <--

PRIORITY APPLN. INFO.: DE 2000-10035432 A 200007 20 <--

AB The lime-**clay** suspension contains fine-grained dry substances 50 weight% consisting of CaCO3 25-30, MgCO3 0.5-2, SiO2 8-12, Al2O3 2-4, Fe2O3 1-3 weight%. Addition of the lime-**clay**

suspension to a cow manure showed improved flowability and plant root growth. The lime-**clay** suspension can be used for neutralization of watercourses and as building materials.

IT **471-34-1**, Calcium carbonate, processes
RL: AGR (Agricultural use); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); BIOL (Biological study); PROC (Process); USES (Uses)
(lime-**clay** suspension for the treatment of liquid **manure**)

RN 471-34-1 HCAPLUS
CN Carbonic acid calcium salt (1:1) (CA INDEX NAME)

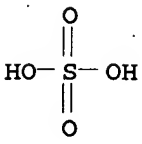
IC ICM C05F003-00
ICS C02F001-66
CC 58-3 (Cement, Concrete, and Related Building Materials)
Section cross-reference(s): 19, 60
ST lime **clay** suspension fertilizer; building material lime **clay** suspension
IT Water-resistant materials
(construction materials; lime-**clay** suspension for)
IT Soil liming
(lime-**clay** suspension for)
IT Fertilizers
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(lime-**clay** suspension for the treatment of liquid manure)
IT **Clays**, processes
Lime (chemical)
RL: AGR (Agricultural use); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); BIOL (Biological study); PROC (Process); USES (Uses)
(lime-**clay** suspension for the treatment of liquid manure)
IT Wastewater treatment
Water purification
(liming; lime-**clay** suspension for)
IT Manure
(treatment; lime-**clay** suspension for the treatment of liquid manure)
IT Construction materials
(water-resistant; lime-**clay** suspension for)
IT **471-34-1**, Calcium carbonate, processes 546-93-0, Magnesium carbonate 1309-37-1, Iron oxide (Fe2O3), processes 1344-28-1, Alumina, processes 7631-86-9, Silica, processes
RL: AGR (Agricultural use); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); BIOL (Biological study); PROC (Process); USES (Uses)
(lime-**clay** suspension for the treatment of liquid **manure**)

L29 ANSWER 7 OF 18 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1994:269050 HCAPLUS

DOCUMENT NUMBER: 120:269050
ORIGINAL REFERENCE NO.: 120:47643a,47646a
TITLE: Use of mineral amendments to reduce ammonia losses from dairy-cattle and chicken-manure slurries
AUTHOR(S): Termeer, W. C.; Warman, P. R.
CORPORATE SOURCE: Dep. Chem. Soil Sci., Nova Scotia Agric. Coll., Truro, NS, B2N 5E3, Can.
SOURCE: Bioresource Technology (1993), 44(3), 217-22
CODEN: BIRTEB; ISSN: 0960-8524
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Two laboratory expts. evaluated the use of mineral amendments to reduce NH3 volatilization from dairy- and poultry-manure slurries during storage or when applied to soil. Fresh manure was amended at a 1% and a 3% rate with superphosphate (SP), rock phosphate (RP), and gypsum (GP) and stored for 30 days. Anaerobically stored manure was amended with Na-**bentonite** (BT), CaCl2 (CC), gypsum (GP), rock phosphate (RP), superphosphate (SP), and triple superphosphate (TSP) at a 2% rate and surface-applied to Pugwash sandy loam (Humo-Ferric Podzol). The loss of NH3 was measured over a seven-day period. The NH3 volatilization was evaluated by two methods: direct measurement of volatilized NH3 through capture in acid traps, and chemical anal. of initial and final nitrogen contents of manure and/or soil. During storage, NH3 volatilization was reduced by SP and GP in dairy manure, but none of the amendments effectively reduced volatilization from poultry manure. Ammonia volatilization from surface-applied manure was reduced by TSP, SP, CC, and GP treatments to dairy manure and by CC and SP treatments to poultry manure. The reduction in NH3 volatilization was apparently due to the decrease in pH of the manure caused by the amendments.

IT **13397-24-5**, Gypsum, biological studies
RL: RCT (Reactant); RACT (Reactant or reagent)
(ammonia losses from **manures** reduction by)
RN 13397-24-5 HCAPLUS
CN Gypsum (Ca(SO4).2H2O) (CA INDEX NAME)



● Ca

●2 H_2O

CC 19-3 (Fertilizers, Soils, and Plant Nutrition)
IT **Bentonite**, biological studies
RL: RCT (Reactant); RACT (Reactant or reagent)
(sodian, ammonia losses from manures reduction by)
IT 10043-52-4, Calcium chloride, biological studies **13397-24-5**

, Gypsum, biological studies
RL: RCT (Reactant); RACT (Reactant or reagent)
(ammonia losses from **manures** reduction by)

L29 ANSWER 8 OF 18 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1994:225882 HCAPLUS
DOCUMENT NUMBER: 120:225882
ORIGINAL REFERENCE NO.: 120:39933a,39936a
TITLE: Materials for treating animal manure
INVENTOR(S): Ito, Hiroshi
PATENT ASSIGNEE(S): Daiki Kk, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

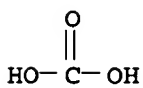
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05308868	A	19931122	JP 1992-157204	19920501
JP 2894895	B2	19990524		

PRIORITY APPLN. INFO.: JP 1992-157204 19920501

AB The materials are colored granules of dried extraction residue of coffee beans. The coloring agent is selected from CaCO3, TiO2, synthetic pearl, C, Eriochrome Black T, Amino Black 10B, Chlorazol Black BH, Cyanine blue, Azo Blue, Patent Blue, Cyanine Green, Emerald Green, Azo Yellow, Acid Yellow, and Hansa Yellow; and the granules man also contain additives, e.g., pulp, cellulose and its derivs., corn starch, **bentonite**, zeolite, and/or disinfectants, e.g., benzoic acid, sorbic acid, their salts, Ca propionate, NaClO, and/or NaCl.

IT **471-34-1**, Calcium carbonate, uses
RL: USES (Uses)
(coloring agent, for granulated coffee bean extraction residue, for **manure** treatment)

RN 471-34-1 HCAPLUS
CN Carbonic acid calcium salt (1:1) (CA INDEX NAME)



● Ca

IC ICM A01K001-015
ICS A61L009-01
CC 60-4 (Waste Treatment and Disposal)
IT Pulp, cellulose

Zeolite-group minerals
Bentonite, uses
Gelatins, uses
RL: PROC (Process)
(granulated coffee bean extraction residue containing, for manure treatment)

IT 6420-06-0, Azo Blue 7440-44-0, Carbon, uses 12627-77-9, Azo Yellow 13463-67-7, Titania, uses 53664-39-4, Cyanine Green 72709-78-5, Patent Blue 111804-68-3, Amine Black 10B **471-34-1**, Calcium carbonate, uses 523-42-2, Cyanine Blue 1325-75-3, Emerald Green 1787-61-7, Eriochrome black T 2429-73-4, Chlorazol Black BH 2512-29-0, Hansa Yellow 2706-28-7, Acid Yellow
RL: PROC (Process)
(coloring agent, for granulated coffee bean extraction residue, for **manure** treatment)

L29 ANSWER 9 OF 18 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1991:163043 HCAPLUS
DOCUMENT NUMBER: 114:163043
ORIGINAL REFERENCE NO.: 114:27567a,27570a
TITLE: Cation exchange capacity, induced in calcareous soils by fertilization with manure
AUTHOR(S): Lax, Antonio
CORPORATE SOURCE: Cent. Edafol. Biol. Apl. Segura, Murcia, Spain
SOURCE: Soil Science (**1991**), 151(2), 174-8
CODEN: SOSCAK; ISSN: 0038-075X
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The influence of organic fertilization on the increase of cation exchange capacity (CEC) in calcareous soils was studied. Two soils with **illite** and interstratified **illite-montmorillonite clay** fractions, resp., were fertilized with sheep and chicken manures and submitted to culture conditions during 3 yr. The evolutions of CEC, total organic C, and extractable C were studied. The relationships among these parameters and increases in them induced by fertilization show that in soil with low **clay** content (interstratified), the increases of CEC are additive, but in the **illitic** soil, some **clay**-humic interaction may occur accompanied by the protection of high CEC organic fractions.

IT **12173-60-3**, **Illite** ([Al1.75(Fe0-1Mg0-1)0.25]K0.75(Si3.5Al0.5)[(OH)0.5-1F0-0.5]2O10) **12173-60-3D**, **Illite** ([Al1.75(Fe0-1Mg0-1)0.25]K0.75(Si3.5Al0.5)[(OH)0.5-1F0-0.5]2O10), interstratifcation compds. with **montmorillonite**
RL: OCCU (Occurrence)
(in soils, cation exchange capacity response to **manure** application in relation to)

RN 12173-60-3 HCAPLUS
CN Illite ([Al1.75(Fe0-1Mg0-1)0.25]K0.75(Si3.5Al0.5)[(OH)0.5-1F0-0.5]2O10) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O5Si2	1.75	20328-07-8
O	1.25	17778-80-2
F	0 - 1	14762-94-8
HO	1 - 2	14280-30-9

K	0.75	7440-09-7
Mg	0 - 0.25	7439-95-4
Fe	0 - 0.25	7439-89-6
Al	2.25	7429-90-5

RN 12173-60-3 HCAPLUS
CN Illite ([Al1.75(Fe0-1Mg0-1)0.25]K0.75(Si3.5Al0.5)[(OH)0.5-1F0-0.5]2O10) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O5Si2	1.75	20328-07-8
O	1.25	17778-80-2
F	0 - 1	14762-94-8
HO	1 - 2	14280-30-9
K	0.75	7440-09-7
Mg	0 - 0.25	7439-95-4
Fe	0 - 0.25	7439-89-6
Al	2.25	7429-90-5

CC 19-3 (Fertilizers, Soils, and Plant Nutrition)
IT Manure
(cation-exchange capacity of calcareous soils response to, from chickens and sheep, organic matter and **clay** content in relation to)
IT 1318-93-0D, **Montmorillonite** ((Al1.33-1.67Mg0.33-0.67)(Ca0-1Na0-1)0.33Si4(OH)2O10.xH2O), interstratifcation compds. with **illite 12173-60-3, Illite** ([Al1.75(Fe0-1Mg0-1)0.25]K0.75(Si3.5Al0.5)[(OH)0.5-1F0-0.5]2O10) **12173-60-3D, Illite** ([Al1.75(Fe0-1Mg0-1)0.25]K0.75(Si3.5Al0.5)[(OH)0.5-1F0-0.5]2O10), interstratifcation compds. with **montmorillonite**
RL: OCCU (Occurrence)
(in soils, cation exchange capacity response to **manure** application in relation to)

L29 ANSWER 10 OF 18 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1987:101295 HCAPLUS
DOCUMENT NUMBER: 106:101295
ORIGINAL REFERENCE NO.: 106:16581a,16584a
TITLE: The response of grass for silage to sulfur application at 20 sites in Northern Ireland
AUTHOR(S): Stevens, R. J.; Watson, Catherine J.
CORPORATE SOURCE: Agric. Food Chem. Res. Div., Dep. Agric. Northern Ireland, Belfast, BT9 5PX, UK
SOURCE: Journal of Agricultural Science (**1986**), 107(3), 565-71
CODEN: JASIAB; ISSN: 0021-8596
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Twenty field sites were selected for their potential S-deficient status. The effect of S at 10 kg S/ha per cut as gypsum or kieserite [**14567-64-7**] on the yield and composition of grass for silage given intensive fertilizer was measured at 2 or 3 cuts in 1985. Other incidental S inputs in P and K fertilizers and organic **manures** were minimized. There were significant increases in dry-matter yield at 10 harvests on 5 sites. At 7 of the 10 harvests gypsum and kieserite were equally effective, but at 3 harvests only kieserite gave significant yield increases. The dry-matter yield

increases occurred at all 3 cuts. Using soil analyses to predict S-deficient sites had limited success. The conclusions from this study were that soils with extractable sulfate values >10 mg S/L had adequate reserves for 3-cut silage while soils with values <10 mg S/L had a 1 in 3 chance of being S deficient. Using plant analyses to diagnose S-deficient herbage had also limited success. In this study herbage with an N/S ratio >14 was S deficient while herbage with ratio >12 had a 1 in 2 chance of being deficient. The proportion of S-responsive sites in this study is an overestimate for Northern Ireland as a whole. Most soils in this country have higher **clay** and organic matter contents than the field sites. The application of organic **manures** in normal agricultural practice is likely to be an important source of S to grass for cutting.

CC 19-5 (Fertilizers, Soils, and Plant Nutrition)

L29 ANSWER 11 OF 18 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1984:629211 HCAPLUS
DOCUMENT NUMBER: 101:229211
ORIGINAL REFERENCE NO.: 101:34803a,34806a
TITLE: Charge heterogeneity and the calorimetry of potassium-calcium exchange-adsorption in **clays** and soils
AUTHOR(S): Talibudeen, O.
CORPORATE SOURCE: Rothamsted Exp. Stn., Harpenden/Herts., UK
SOURCE: Adsorption Science & Technology (**1984**), 1(3), 235-46
CODEN: ASTEEZ; ISSN: 0263-6174
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Current evidence for surface heterogeneity of the permanent neg. charge in some soils and **phyllosilicates**, which is based on the thermodn. interpretation of K-Ca exchange isotherms and on other methods, is summarized. The relation between differential heats of K-Ca exchange and K saturation of the permanent neg. charge in the **phyllosilicates**, especially the smectites and the kaolins, is described and related to their known interlayer expansion with ethylene glycol intercalation. From these descriptions, their surface charge heterogeneity and new definitions of pure **phyllosilicates**, especially pure **montmorillonite** [1318-93-0] and pure **kaolinite** [**1318-74-7**], are inferred. The heterogeneity of cation-exchange sites in some English soils is compared with those of the 2:1 **phyllosilicates**. Differences in the differential heat:fractional K saturation relations between soil **phyllosilicates** before and after treatment with K salts and with farmyard **manure** illustrate the effects of such treatments on site heterogeneity.

CC 19-3 (Fertilizers, Soils, and Plant Nutrition)
ST **clay** potassium calcium exchange calorimetry; potassium calcium exchange calorimetry soil; surface charge heterogeneity **phyllosilicate** soil
IT Heat of adsorption
(of potassium, in exchange with calcium in **clays** and soils)
IT Soils
Bentonite, properties
Clay minerals
Clays, properties
RL: BIOL (Biological study)

(potassium-calcium exchange-adsorption in, charge heterogeneity and calorimetry of)
IT Manure
(farmyard, potassium-calcium exchange calorimetry in soils response to, **phyllosilicate** charge heterogeneity in relation to)
IT Fertilizers
RL: BIOL (Biological study)
(potassium, potassium-calcium exchange calorimetry in soils response to, **phyllosilicate** charge heterogeneity in relation to)
IT Electric charge
(surface, heterogeneity of, in **clays** and soils, calorimetry of potassium-calcium exchange in relation to)
IT 7440-09-7, properties
RL: PRP (Properties)
(cation exchange of, with calcium in **clays** and soils, charge heterogeneity and calorimetry of)
IT 7440-70-2, properties
RL: PRP (Properties)
(cation exchange of, with potassium in **clays** and soils, charge heterogeneity and calorimetry of)

L29 ANSWER 12 OF 18 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1984:137869 HCAPLUS
DOCUMENT NUMBER: 100:137869
ORIGINAL REFERENCE NO.: 100:21017a,21020a
TITLE: The effect of suspended **clay** on feeding and digestive efficiency of the surf clam, Spisula solidissima (Dillwyn)
AUTHOR(S): Robinson, William E.; Wehling, William E.; Morse, M. Patricia
CORPORATE SOURCE: Mar. Sci. Lab., Northeastern Univ., Nahant, MA, 01908, USA
SOURCE: Journal of Experimental Marine Biology and Ecology (**1984**), 74(1), 1-12
CODEN: JEMBAM; ISSN: 0022-0981
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Groups of 18-19 1-yr old surf clams, S. solidissima, were exposed to 0.1, 0.5, or 1.0 g/L attapulgite [**12174-11-7**] (**clay**) suspensions for 3- and 21-day periods. Following treatment, clams were allowed to feed for 1 h in a 500-mL suspension of Isochrysis galbana (25 μg/L chlorophyll) and attapulgite, dosed at the concentration to which the clams were previously treated. Water samples (pre- and post-feeding), pseudofeces, and **feces** were collected, extracted in acetone, and analyzed for chlorophyll and pheopigment content. Results indicate that turbidity levels >0.1 g/L attapulgite **clay** result in a significant increase of pseudofecal production and a decrease in the amount of algal food actually ingested. Mean chlorophyll consumption and digested chlorophyll levels were progressively lower and mean pseudofecal chlorophyll levels higher for groups treated with increasing concns. of attapulgite. Fecal chlorophyll levels were low and variable. Digestive efficiency, defined as the percent of consumed chlorophyll which was degraded to pheopigment during gut passage, was generally lower in **clay**-treated clams than controls. Surf clams treated for 21 days demonstrated an apparent acclimation to the 0.1 and 0.5 g/L **clay** concns., showing greater mean chlorophyll consumption and digested chlorophyll levels

than for the corresponding 3-day treated groups. The 1.0 g/L turbidity level was beyond the animals' capability to acclimate. Although the concns. of **clay** tested (100-1000 mg/L) were higher than levels generally encountered in continental shelf bottom waters (<5 mg/L), results of this study indicate that anthropogenic turbidity-producing discharges at levels as low as 100 mg/L may have adverse effects on the energetics of surf clam populations.

CC 18-7 (Animal Nutrition)

ST chlorophyll digestion clam attapulgite; clam digestion feeding behavior **clay**; attapulgite clam digestion feeding; water turbidity clam digestion feeding

IT Chlorophylls, biological studies
RL: BIOL (Biological study)
(digestion of, by surf clams, **clay** level in water in relation to)

IT Spisula solidissima
(feeding behavior and feed digestion by, **clay** level in water in relation to)

IT Digestion, biological
(of feed, by surf clams, **clay** level in water in relation to)

IT Behavior
(feeding, of surf clams, **clay** level in water in relation to)

L29 ANSWER 13 OF 18 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1982:597424 HCAPLUS
DOCUMENT NUMBER: 97:197424
ORIGINAL REFERENCE NO.: 97:33053a,33056a
TITLE: Biological and chemical proof for potassium-impoverishment and its consequence for soil fertility
AUTHOR(S): Von Boguslawski, E.; Von Lieres, A.
CORPORATE SOURCE: Inst. Pflanzenbau Zuecht., JLU, Giessen, D-6300, Fed. Rep. Ger.
SOURCE: Landwirtschaftliche Forschung, Sonderheft (**1982**), Volume Date 1981, 38, 722-9
CODEN: SZLFA3; ISSN: 0457-110X
DOCUMENT TYPE: Journal
LANGUAGE: German

AB Based on long-term field expts. with N-P-K vs. N-P application, comparative pot expts. and chemical studies on the K status and dynamics were carried out. Even when **manure** was added, the K balance on no-K plots was neg. K balances in variants with and without K in the field were compared with results of pot expts. (Mitscherlich- and Micropots) and those obtained with chemical methods. Comparison of K values of the extract obtained by conventional methods with those obtained by the Na tetraphenylborate (NaTPB) method showed more available K to be extracted by the NaTPB than conventional methods or K exchange by NH4Cl. The correlation between the values obtained with the NaTPB method and K uptake by Lolium italicum in pots was satisfactory. A change in **illite** [**12173-60-3**] was demonstrated, for the 1st time, by x-ray anal. after a relatively short time in field expts. on Gray-Brown Podzolic soils due to intensive K uptake in the variant without K fertilizers.

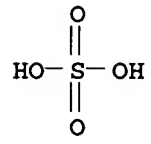
CC 19-5 (Fertilizers, Soils, and Plant Nutrition)

ST potassium impoverishment soil fertility; **illite** change potassium uptake plant

L29 ANSWER 14 OF 18 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1982:84549 HCAPLUS
DOCUMENT NUMBER: 96:84549
ORIGINAL REFERENCE NO.: 96:13873a,13876a
TITLE: Multiple leaching of phosphorus from chernozems, brown soils, and regosols by 0.5 N sulfuric acid
AUTHOR(S): Pechova, B.
CORPORATE SOURCE: Vysk. Ustavu Podoznalectva, Bratislava, Czech.
SOURCE: Vedecke Prace Vyskumneho Ustavu Podoznalectva a Vyzivy Rastlin v Bratislave (1981), 11, 109-17
CODEN: VPVPAC; ISSN: 0375-4960
DOCUMENT TYPE: Journal
LANGUAGE: Slovak
AB After a 12-fold repeated extraction of P, the highest amount of P was extracted from the chernozem soil (701.5-854.4 mg/kg soil) and the lowest one from the regosol (27.5-39.5 mg/kg); from the brown soil 224.4-290 mg/kg was extracted Highest amts. from all soils were extracted during the 1st h, and the P amount from the 1st 2 extns. constituted 85, 71, and 46% for the chernozem, regosol, and brown soil, resp. Most P extracted from the 1st and 3rd soil was represented by Ca-P and most P extracted from the regosol consisted of Fe-P followed by Al-P. The Ca-P/(Al-P + Fe-P) ratios in the 1st, and 2nd, and 3rd (brown) soil were 2:1-3:1, 1:3-1:4, and 2:1-3:1, resp., and the carbonate contents of these soils were 0.52, 0.1, and 0.08%, resp. Fertilization at highest P rate (1000 kg/ha) and straw or **manure** application (6 and 35 ton/ha, resp.) on a background of N 60, P 35, and K 100 kg/ha affected little the P extracted from chernozem soil but greatly that from the brown soil. The extraction rate depended on **clay** mineral composition of the soils. The extraction rate decreased with increasing **montmorillonite** [1318-93-0] content of the soil **clay**, and it was higher when **illite** [**12173-60-3**] than **montmorillonite** was the prevailing **clay** mineral of the soil.
CC 19-3 (Fertilizers, Soils, and Plant Nutrition)
ST phosphorus leaching soil sulfuric acid; **clay** mineral phosphorus leaching soil
IT **Clay** minerals
RL: BIOL (Biological study)
(phosphorus multiple leaching from soils with sulfuric acid in relation to)
IT 1318-93-0, biological studies 12173-60-3
RL: BIOL (Biological study)
(phosphorus multiple leaching from soils with sulfuric acid in relation to, of soil **clay** fraction)

L29 ANSWER 15 OF 18 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1981:602559 HCAPLUS
DOCUMENT NUMBER: 95:202559
ORIGINAL REFERENCE NO.: 95:33841a,33844a
TITLE: Effect of chemical meliorants on organic substances in the soil
AUTHOR(S): Skuratov, N. S.; Karasenko, L. M.
CORPORATE SOURCE: USSR
SOURCE: Melior. Solontsov. i Zasolen. Zemel Sev. Kavkaza, Novocherkassk (1981) 44-9
From: Ref. Zh., Pochvoved. Agrokhim. 1981, Abstr. No. 957236
DOCUMENT TYPE: Journal
LANGUAGE: Russian

AB Title only translated.
IT **13397-24-5**, biological studies
RL: BIOL (Biological study)
(**clay**-containing, solonetz soil organic matter in relation to **manure** and)
RN 13397-24-5 HCAPLUS
CN Gypsum (Ca(SO4).2H2O) (CA INDEX NAME)



● Ca

●2 H_2O

CC 19-3 (Fertilizers, Soils, and Plant Nutrition)
IT **13397-24-5**, biological studies
RL: BIOL (Biological study)
(**clay**-containing, solonetz soil organic matter in relation to **manure** and)

L29 ANSWER 16 OF 18 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1980:5350 HCAPLUS
DOCUMENT NUMBER: 92:5350
ORIGINAL REFERENCE NO.: 92:1023a,1026a
TITLE: Effect of different salts and organic manures on weathering of **clay** minerals - **illites**
AUTHOR(S): Adhikari, M.; Bandhopadhyay, A. K.; Majumdar, M. K.
CORPORATE SOURCE: Coll. Sci. Technol., Calcutta Univ., Calcutta, 1, India
SOURCE: Fertilizer Technology (**1978**), 15(2), 117-20
CODEN: FETEDP; ISSN: 0378-0430
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The nature and extent of weathering of **illite** [**12173-60-3**] (2:1 layer lattice) by alternate wetting and drying with inorg. salts (chlorides, carbonates, and sulfates of Na, K, and Mg) and cow **manure** for 1 yr was investigated. The basal reflections in x-ray patterns were almost extinguished by treatment with **manure** and different inorg. salts, and some prominent changes in DTA endotherms were observed No major alteration in secondary minerals was found.
IT **12173-60-3**
RL: BIOL (Biological study)
(weathering of, inorg. salts and **manure** effect on)
RN 12173-60-3 HCAPLUS
CN Illite ([Al1.75(Fe0-1Mg0-1)0-.25]K0.75(Si3.5Al0.5)[(OH)0.5-1F0-

0.5]2010) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O5Si2	1.75	20328-07-8
O	1.25	17778-80-2
F	0 - 1	14762-94-8
HO	1 - 2	14280-30-9
K	0.75	7440-09-7
Mg	0 - 0.25	7439-95-4
Fe	0 - 0.25	7439-89-6
Al	2.25	7429-90-5

CC 19-2 (Fertilizers, Soils, and Plant Nutrition)
ST **illite** weathering inorg salt manure; **clay** mineral weathering salt manure
IT Manure
Salts, biological studies
RL: BIOL (Biological study)
(**illite** weathering response to)
IT 497-19-8, biological studies 546-93-0 584-08-7 7447-40-7, biological studies 7487-88-9, biological studies 7647-14-5, biological studies 7757-82-6, biological studies 7778-80-5, biological studies 7786-30-3, biological studies
RL: BIOL (Biological study)
(**illite** weathering response to)
IT **12173-60-3**
RL: BIOL (Biological study)
(weathering of, inorg. salts and **manure** effect on)

L29 ANSWER 17 OF 18 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1978:441298 HCAPLUS
DOCUMENT NUMBER: 89:41298
ORIGINAL REFERENCE NO.: 89:6399a,6402a
TITLE: Soda stability and its dynamics in chernozem-steppe Solonetz soils following chemical reclamation
AUTHOR(S): Tsurikov, A. G.
CORPORATE SOURCE: Voronezh. S-kh. Inst., Voronezh, USSR
SOURCE: Pochvovedenie (**1978**), (4), 87-96
CODEN: PVDEAZ; ISSN: 0032-180X
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB Chalk was a suitable substitute for gypsum in reclaiming soda-salinized solonetz soils. The soda-stability of the soil (SR), a measure of the amount of soda inactivated by the soil, characterized well the soil buffering capacity with regard to alkalinization. Maximum SR was observed in eluvial and lower horizons containing gypsum [**13397-24-5**] accumulations; in that case the buffering capacity with regard to soda was related to the presence of humic substances, sorbed H+, and gypsum. The low SR (14-18 mequiv.) in some soil horizons was related to carbonate and **clay** and colloidal particle contents, and to salt composition of the soil solution Chernozem soils had a higher SR than solonetz ones. In 4-5 yr after application of the amelioraating agents, a decrease in pos. effect of gypsum (8 ton/ha) on SR was observed; in chalk-treated soils the decrease was observed after 4-6 yrs, and thereafter no difference between the 2 materials in their effect on SR was found. **Manure** caused some increase in soil buffering capacity with

regard to acidity. The soil SR increased in moist and decreased in dry yrs.
CC 19-3 (Fertilizers, Soils, and Plant Nutrition)

L29 ANSWER 18 OF 18 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1957:94084 HCAPLUS
DOCUMENT NUMBER: 51:94084
ORIGINAL REFERENCE NO.: 51:17043g-h
TITLE: Fixation of atmospheric nitrogen under sterile conditions on **kaolinite** with straw and cow dung and the effect of different phosphates on the efficiency of fixation
AUTHOR(S): Mitra, S. P.; Prakash, Dharam
CORPORATE SOURCE: Univ. Allahabad
SOURCE: Proc. Natl. Acad. Sci., India (**1955**), 24A, 187-95
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB **Kaolinite**, treated with various organic materials (containing 1% C), on incubation was found to fix N in the absence of microorganisms. The amount of C oxidized and the amount of N fixed was nearly double in those samples exposed to light as compared to those maintained in the dark. The presence of CaHPO4 was found to increase markedly the oxidation of organic matter and the fixation of N as NH3 adsorbed by the **kaolinite.**
IT **1318-74-7, Kaolinite**
(nitrogen fixation on, with cow **feces** and straw, and phosphate effect thereon)
RN 1318-74-7 HCAPLUS
CN Kaolinite (Al2(OH)4(Si2O5)) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O5Si2	1	20328-07-8
HO	4	14280-30-9
Al	2	7429-90-5

CC 15 (Soils and Fertilizers)
IT Nitrogen fixation
(by **kaolinite**, effect of light and phosphate on)
IT Phosphates
(in nitrogen fixation on **kaolinite**)
IT Light
(in nitrogen fixation, in **kaolinite**)
IT Straw
(nitrogen fixation by, on **kaolinite**, phosphate effect on)
IT Feces
(nitrogen fixation on **kaolinite** by, and phosphate effect thereon)
IT 7757-93-9, Calcium phosphate, CaHPO4
(effect on N fixation and organic matter oxidation on **kaolinite**)
IT **1318-74-7, Kaolinite**
(nitrogen fixation on, with cow **feces** and straw, and phosphate effect thereon)

=>